

CLAIMS:

1. An optical element for interacting with a first radiation beam having a first wavelength and a second radiation beam having a different, second wavelength and introducing a first wavefront deviation in the first radiation beam and a second wavefront deviation in the second radiation beam, the optical element having a surface in the path of the first and second radiation beam, the surface comprising a phase structure in the form of annular areas, the areas forming a non-periodic pattern of optical paths of different length, the optical paths for the first wavelength forming the first wavefront deviation and the optical paths for the second wavelength forming the second wavefront deviation, characterised in that the difference between the first and second wavefront deviation is proportional to the difference between the first wavelength and the second wavelength.

2. Optical element according to Claim 1, wherein the differences between the optical paths for the first wavelength are multiples of the first wavelength.

3. Optical element according to Claim 2, wherein at least one of the multiples is equal to two or larger.

4. Optical element according to Claim 1, wherein the difference between the first and the second wavefront deviation is defocus.

5. Optical element according to Claim 1, wherein the difference between the first and the second wavefront deviation is spherical aberration.

6. Optical element according to Claim 1, wherein the element is a lens.

7. Optical element according to Claim 1, wherein the element comprises at least a grating.

8. Optical element according to Claim 1, wherein the element comprises at least a grating and a lens.

34B A1 9. An optical head for scanning an optical record carrier having an information layer, the head comprising a radiation source for generating a first radiation beam having a first wavelength and a second radiation beam having a second wavelength, and an objective system for converging the first radiation beam and the second radiation beam to a focus on the information layer, characterised in that the optical head comprises an optical element according to any of the previous Claims for introducing a wavefront deviation in the second radiation beam.

10. A device for scanning an optical record carrier having an information, the device comprising an optical head according to Claim 9 and an information processing unit for error correction.

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TOTAL 1650